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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/019,962 01/07/2002 Mika Perala 3501-1001 6257

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ARLINGTON, VA 22202

EXAMINER

ROBERTSON, JEFFREY

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 09/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/019,962	PERALA ET AL.
	Examiner	Art Unit
	Jeffrey B. Robertson	1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 6/4/03, 7/2/03.

2a) This action is FINAL.                            2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-12 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-7 and 9-12 is/are rejected.

7) Claim(s) 8 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

### ***Specification***

1. The disclosure is objected to because of the following informalities: in reviewing this objection, the examiner realized that the inquiry should have been if the term "molar mass" meant molecular weight on page 3, lines 32-34, and if so is the molecular weight of the polysiloxane weight average or number average molecular weight. This is also true for the 35 U.S.C. § 112 rejection set forth below. The amendment filed 6/4/03 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: it is not clear if the priority document supports the addition of "total molecular weight" since the term "moolimassa" appears to mean "molecular weight".

Applicant is required to cancel the new matter in the reply to this Office Action.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-12 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. For claim 1, applicant sets forth a range for the

molecular weight of the siloxane. However, it is not known how the molecular weight is determined and whether it is weight average or number-average molecular weight.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3, and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuriyama et al. (U.S. Patent No. 4,851,481).

For claim 1, Kuriyama teaches an epoxy resin composition that is used in paints in the abstract. In column 2, lines 8-34, Kuriyama teaches the presence of an organopolysiloxane having terminal silanol groups. This corresponds to applicant's formula for component ii) where R<sub>2</sub> is hydrogen. Kuriyama teaches that R<sub>1</sub> is methyl or phenyl, which also falls within the definition of applicant's R<sub>1</sub>. Here, Kuriyama also teaches that p is an integer of 9-500, which significantly overlaps with the molecular weight requirement of component ii).

For claims 1 and 9-11, Kuriyama also teaches the addition of epoxy silanes in column 6, line 1 through column 7, line 17. Here Kuriyama sets forth (3,4-epoxycyclohexyl)ethyl-trimethoxysilane and 3-glycidyloxypropyltrimethoxysilane as suitable silanes. For claims 1 and 3, in column 4, lines 43-47, Kuriyama teaches non-aromatic branched epoxy resins including those of the glycerin triether type.

In column 3, lines 35-41, Kuriyama teaches that the ratio of alkoxy groups in the silane to hydroxy groups in the organopolysiloxane of 0.1 to 15, indicating that these groups react at a chemical level. In column 9, lines 24-27, Kuriyama teaches that the epoxy resin may be mixed the silane compounds and the organopolysiloxane. In column 9, lines 41-54, Kuriyama teaches that the reaction of the organopolysiloxane and the silane is carried out in the presence of a catalyst. Note that the catalysts used are condensation catalysts that promote the reaction of the hydroxyl groups of the polyorganosiloxane and the alkoxy groups of the silane. In column 9, lines 65-68, Kuriyama teaches that the epoxy resin compositions may be cured using a conventional curing agent for the epoxy resin. The reaction between the polysiloxane modified with the epoxysilane and the epoxy resin is inherent. During the cure, since both the epoxy silane and the epoxy resin contain epoxy groups they both react with the curing agent, and consequently a reaction between the two proceeds. "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are

necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

6. Claims 1, 2, 9, 10, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Gasmota (U.S. Patent No. 5,703,178).

For claim 1, in column 2, lines 43-50, Gasmota teaches coatings that contain an epoxy resin, an epoxy silane, a siloxane, and optionally a pigment. In column 6, lines 22-26, Gasmota teaches that the epoxy resin may be an aliphatic epoxy resin. In column 2, lines 34-36, Gasmota teaches that the epoxy resin makes up 1-20% by weight of the composition. For claims 1, 9, and 10, in column 3, lines 38-65, Gasmota teaches the addition of an epoxy functional silane and specifically mentions glycidyloxypropyltrimethoxysilane as preferred example. In column 4, lines 1-5, Gasmota teaches that the epoxy silane is present in an amount of 0.5 to 5 % of the composition. In column 4, lines 16-40, Gasmota teaches the addition of a polysiloxane that has a molecular weight of 500 to 3500, which significantly overlaps with applicant's molecular weight. Applicant's  $R_1$  and  $R_2$  significantly overlap with Gasmota's  $R_3$  and  $R_4$ . In column 4, lines 50-52, Gasmota teaches that the amount of polysiloxane in the coating is from 0.5 to 5 %.

For claim 2, the amounts of the components set forth by Gasmota result in ratios that fall within applicant's claimed range.

For claim 12, in column 9, lines 50-62, Gasmena teaches a two-part kit where the composition is placed in a first container, and an amine hardener is placed along with other additives in a second container.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuriyama et al. (U.S. Patent No. 4,851,481) as applied to claims 1 and 3 above, and further in view of Eklund et al. (U.S. Patent no. 6,180,726).

For claims 4 and 5, Kuriyama teaches the limitations of claims 1 and 3 as detailed above. Although Kuriyama teaches epoxy resins derived from polyalcohols, Kuriyama does not teach the polyglycidyl ether of pentaerythritol as set forth in claim 5, which would also satisfy the limitations of claim 4.

In column 2, lines 45-64, Eklund teaches coatings containing epoxy resins. In column 8, lines 55-63, Eklund teaches that pigments may be added to the coating compositions thus forming a paint. In column 6, lines 44-46, Eklund teaches the use of aliphatic epoxy resins such as pentaerythritol polyglycidyl ether.

Eklund and Kuriyama are analogous art in that they both teach the use of epoxy resins in paint compositions that also contain silicone components. It would have been obvious to one of ordinary skill in the art at the time of the invention to use

pentaerythritol polyglycidyl ether as the epoxy resin derived from polyalcohols. The motivation would have been that Kuriyama provides the express suggestion to use this type of an epoxy resin. One of ordinary skill in the art would have looked to Eklund to provide specific examples of such resins.

9. Claims 4, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuriyama et al. (U.S. Patent No. 4,851,481) as applied to claims 1 and 3 above, and further in view of Iwamura et al. (U.S. Patent no. 5,705,567).

For claims 4 and 5, Kuriyama teaches the limitations of claims 1 and 3 as detailed above. Although Kuriyama teaches epoxy resins derived from polyalcohols and glycerin triether type resins, Kuriyama does not teach the triglycidyl ether of glycerine or neopentyl glycol diglycidyl ether as set forth in claims 6 and 7, which would also satisfy the limitations of claim 4.

In column 1, lines 10-31, Iwamura teaches paints containing epoxy resins. In column 10, lines 26-38, Iwamura teaches the use of aliphatic epoxy resins such as triglycidyl ether of glycerine or neopentyl glycol diglycidyl ether.

Iwamura and Kuriyama are analogous art in that they both teach the use of epoxy resins in paint compositions that also contain silicone components. It would have been obvious to one of ordinary skill in the art at the time of the invention to use triglycidyl ether of glycerine or neopentyl glycol diglycidyl ether as the epoxy resin derived from polyalcohols and the glycerin triether type resin. The motivation would have been that Kuriyama provides the express suggestion to use these types of epoxy

resins. One of ordinary skill in the art would have looked to Iwamura to provide specific examples of such resins.

10. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gasmena (U.S. Patent No. 5,703,178) as applied to claim 1 above, and further in view of Eklund et al. (U.S. Patent no. 6,180,726).

For claims 3-5, Gasmena teaches the limitations of claim 1 as detailed above. Although Gasmena teaches aliphatic glycidal epoxy resins, Gasmena does not teach the polyglycidyl ether of pentaerythritol as set forth in claim 5, which would also satisfy the limitations of claims 3 and 4.

In column 2, lines 45-64, Eklund teaches coatings containing epoxy resins. In column 8, lines 55-63, Eklund teaches that pigments may be added to the coating compositions thus forming a paint. In column 6, lines 44-46, Eklund teaches the use of aliphatic epoxy resins such as pentaerythritol polyglycidyl ether.

Eklund and Gasmena are analogous art in that they both teach the use of epoxy resins in paint compositions that also contain silicone components. It would have been obvious to one of ordinary skill in the art at the time of the invention to use pentaerythritol polyglycidyl ether as the aliphatic glycidal epoxy resin. The motivation would have been that Gasmena provides the express suggestion to use this type of an epoxy resin. One of ordinary skill in the art would have looked to Eklund to provide specific examples of such resins.

11. Claims 3, 4, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gasmena (U.S. Patent No. 5,703,178) as applied to claim 1 above, and further in view of Iwamura et al. (U.S. Patent no. 5,705,567).

For claims 4 and 5, Gasmena teaches the limitations of claims 1 and 3 as detailed above. Although Gasmena teaches aliphatic glycidal epoxy resins, Gasmena does not teach the triglycidyl ether of glycerine or neopentyl glycol diglycidyl ether as set forth in claims 6 and 7, which would also satisfy the limitations of claims 3 and 4.

In column 1, lines 10-31, Iwamura teaches paints containing epoxy resins. In column 10, lines 26-38, Iwamura teaches the use of aliphatic epoxy resins such as triglycidyl ether of glycerine or neopentyl glycol diglycidyl ether.

Iwamura and Gasmena are analogous art in that they both teach the use of epoxy resins in paint compositions that also contain silicone components. It would have been obvious to one of ordinary skill in the art at the time of the invention to use triglycidyl ether of glycerine or neopentyl glycol diglycidyl ether as the aliphatic glycidal epoxy resins. The motivation would have been that Gasmena provides the express suggestion to use these types of epoxy resins. One of ordinary skill in the art would have looked to Iwamura to provide specific examples of such resins.

***Allowable Subject Matter***

12. Claim 8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, first paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. None of the cited art teaches

or suggests the specific aliphatic epoxy resin as claimed used in compositions containing a polysiloxane and an epoxy silane.

***Response to Arguments***

13. Applicant's arguments filed 6/4/03 have been fully considered but they are not persuasive. Applicant first argues that the term molecular weight refers to "total molecular weight" and therefore overcomes the rejection set forth under 35 U.S.C. § 112 1<sup>st</sup> paragraph. However, while the examiner has found evidence that the term "moolimassa" in the priority document refers to "molecular weight", there is no evidence that this term refers to "total molecular weight", or whether the molecular weight referred to is weight or number averaged molecular weight.

Applicant next argues the rejection of claims 1, 3, and 9-11 as being anticipated by the Kuriyama et al. reference. Applicant states that the silane in Kuriyama does not have to be an epoxy silane and that the polysiloxane/silane reaction product does not react on a molecular level or take place in the hardening reaction. Applicant further argues that Kuriyama fails to disclose that an epoxy silane acts as a crossover region between siloxane chains. In response, the examiner has clarified the rejection as set forth above. First, it is noted that in column 12, Example 10, Kuriyama teaches a specific example including an epoxy silane. Second, as set forth in the rejection above, Kuriyama teaches that the epoxy resin is cured using conventional curing agents. The reaction of the epoxy groups on the epoxy resin with the epoxy groups present on the epoxy silane would inherently take place through the curing agent. In this fashion, the epoxysilane acts as a crosslinking agent between the siloxane chains and the epoxy

resin. The alkoxy groups of the epoxy silane react with the hydroxyl groups from the polysiloxane to form chemical bonds as set forth by Kuriyama. As described above, the reaction of the epoxy groups of the epoxy silane with the epoxy groups of the epoxy resin during cure, results in the chemical crosslinking of the epoxy resin and the polysiloxane via the epoxysilane.

Applicant also argues the rejection of claims 1, 2, 9, 10, and 12 as being anticipated by the Gasmena reference. Applicant argues that Gasmena teaches a highly specified composition that fails to disclose applicant's claimed composition. Specifically applicant points out that Gasmena requires the presence of a siloxane-containing polyether and that the present composition does not require the use of solvents. In response, the examiner notes that applicant has used the term "comprising" as a transitional phrase in claim 1. This allows for the presence of other components in the composition, such as siloxane-containing polyethers and solvents. For this reason, the examiner finds applicant's argument unpersuasive.

Next, applicant argues the rejection of claims 4 and 5 made under 35 U.S.C. 103(a) as being unpatentable over Kuriyama et al. in view of Eklund et al. Applicant argues that Eklund teaches the use of an anhydride, does not teach the presence of an epoxy silane, and that one of ordinary skill in the art would lack the motivation to combine these references. The examiner disagrees. As set forth above, both of these patents teach paint compositions that contain epoxy resins and silicone components. Although Eklund does not teach the use of an epoxy silane, the compositions are very similar. The fact that Eklund uses an anhydride component would not deter one of

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ordinary skill in the art from consulting Eklund for epoxy resins that are conventionally used in the epoxy paint art. As set forth in the rejection above, the motivation for combining these references is based on the direction provided by Kuriyama to use epoxy resins derived from polyalcohols in the composition, forcing one of ordinary skill in the art to consult other references to determine suitable epoxy resins fitting this description that are used in paint compositions.

Applicant also argues the rejection of claims 4, 6, and 7 made under 35 U.S.C. 103(a) as being unpatentable over Kuriyama et al. in view of Iwamura et al. Applicant argues that Iwamura teaches the use of an acrylic oligomer having blocked hydroxyl groups, does not teach the presence of an epoxy silane, and that one of ordinary skill in the art would lack the motivation to combine these references. The examiner disagrees. As set forth above, both of these patents teach paint compositions that contain epoxy resins and silicone components. Although Iwamura does not teach the use of an epoxy silane, the compositions are similar. The fact that Iwamura uses an acrylic oligomer having blocked hydroxyl groups would not deter one of ordinary skill in the art from consulting Iwamura for epoxy resins that are conventionally used in the epoxy paint art, especially since the hydroxyl groups are blocked with siloxy components. As set forth in the rejection above, the motivation for combining these references is based on the direction provided by Kuriyama to use epoxy resins derived from polyalcohols and glycerin triether type resins in the composition. This would motivate one of ordinary skill in the art to consult other references to determine suitable epoxy resins fitting this description that are used in paint compositions.

In addition, applicant argues the rejection of claims 3-5 made under 35 U.S.C. 103(a) as being unpatentable over Gasmeca in view of Eklund et al. Applicant argues that Eklund teaches the use of an anhydride, does not teach the presence of an epoxy silane, and that without an express motivation that additional resins could be used successfully one of ordinary skill in the art would lack the motivation to combine these references. The examiner disagrees. As set forth above, both of these patents teach paint compositions that contain epoxy resins and silicone components. Although Eklund does not teach the use of an epoxy silane, the compositions are very similar. The fact that Eklund uses an anhydride component would not deter one of ordinary skill in the art from consulting Eklund for epoxy resins that are conventionally used in the epoxy paint art. As set forth in the rejection above, the motivation for combining these references is based on the direction provided by Gasmeca to use glycidal-type epoxy resins in the composition, directing one of ordinary skill in the art to consult other references to determine suitable epoxy resins fitting this description that are used in paint compositions.

Last, applicant argues the rejection of claims 3, 4, 6, and 7 made under 35 U.S.C. 103(a) as being unpatentable over Gasmena in view of Iwamura et al. Applicant argues that Iwamura teaches the use of an acrylic oligomer having blocked hydroxyl groups, does not teach the presence of an epoxy silane, and that one of ordinary skill in the art would lack the motivation to look at Iwamura or any other reference. The examiner disagrees. As set forth above, both of these patents teach paint compositions that contain epoxy resins and silicone components. Although Iwamura does not teach the use of an epoxy silane, the compositions are similar. The fact that Iwamura uses an acrylic oligomer having blocked hydroxyl groups would not deter one of ordinary skill in the art from consulting Iwamura for epoxy resins that are conventionally used in the epoxy paint art, especially since the hydroxyl groups are blocked with siloxy components. As set forth in the rejection above, the motivation for combining these references is based on the direction provided by Gasmena to use glycidal-type epoxy resins in the composition. This would motivate one of ordinary skill in the art to consult other references to determine suitable epoxy resins fitting this description that are used in paint compositions. The examiner disagrees that one of ordinary skill in the art would have no need to look at Iwamura or any other publication, especially in view of the sparse description that Gasmena sets forth to describe suitable epoxy resins.

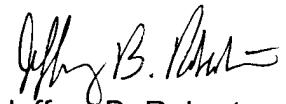
The objections to the claims and rejections set forth under 35 U.S.C. §112, 2<sup>nd</sup> paragraph have been withdrawn in light of applicant's amendments and comments presented in the response of 6/4/03 and the supplemental amendment of 7/2/03. This is intended to be a full and complete response to applicant's arguments set forth in the response of 6/4/03. The examiner notes that the supplemental amendment of 7/2/03 relies on the arguments of 6/4/03 as addressed above.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey B. Robertson whose telephone number is (703) 306-5929. The examiner can normally be reached on Mon-Fri 7:00-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert A. Dawson can be reached on (703) 308-2340. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Jeffrey B. Robertson  
Primary Examiner  
Art Unit 1712

JBR